UNITED STATES PATENT AND TRADEMARK OFFICE

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10/709,072	04/12/2004	Chia-Hung Lin	WTNG-00600	3071

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EXAMINER
SIM, YONG H

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2010*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-17* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-6 and 8-17* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *4/12/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All b)☐ Some * c)☐ None of:
        1.☒ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114 was filed in this

application after appeal to the Board of Patent Appeals and Interferences, but prior to a

decision on the appeal. Since this application is eligible for continued examination

under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the

appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this

application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed

on 1/20/2010 has been entered.

Response to Arguments

2.   Applicant's arguments filed 1/20/2010 have been fully considered but they are

not persuasive.

        With respect to the Applicant's argument regarding claim 1, the Applicant

argues that Marshal fails to teach "wherein the adjustment includes minimizing

one of yellow and purple color in the projected gray-level image."

        However, Examiner respectfully disagrees. As explained in the previous

Office Action, Marshall teaches the method of manually adjusting color wheel

alignment. Although, Marshall gave only one example of correcting the

phenomenon of the display appearing bluish purple or reddish purple, which is

caused by the delay of the color wheel, in a different situation where R color of

the color wheel is too slow, a yellowish image will be projected and the color wheel adjustment will reduce/minimize the yellow color in the grayscale image.

The Applicants have kindly provided a colored diagram via Examiner's email address. Although Examiner acknowledges that the diagram of Marshall's invention and the diagram of current application appear to be different, the inventive concept is equivalent according to the recited limitations of the claims. For example, even though the diagram shows a gray colored image and a magenta colored image, they are both considered to be gray-level images in the current field of endeavor. Thus, they are not patentably distinct according to the language of claim 1.

Furthermore, the Applicant argues that Marshall does not teach a system or method of incorporating a gray-level image for adjusting color wheel delay. However, Marshall teaches and discloses in Col. 3, lines 43 - 50, "a method of manually adjusting a color wheel delay of a spatial light modulator display system by a user by pressing buttons on a remote control... a user who perceives **a gray level image** (emphasis added) on a screen will activate the color wheel delay..."

Therefore, the argument is moot and the previous rejections are maintained.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

5.   **Claims 1 – 6, 8 – 12 and 14 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-David et al. (Hereinafter "Ben-David" WO 01/95544) in view of Marshall (US 5,774,196) and further in view of Park (US 2002/0163527A1).**

Re claim 1, Ben-David teaches a projector (48, Fig. 3B) comprising: a housing (Pg. 6, lines 20 – 21; "The present invention is suitable for various types of electronic display devices, such as televisions and monitor devices." A conventional television comprises a "housing."); a light source (50, Fig. 3B) installed in the housing;

a color wheel (54, Fig. 3B) for separating the light from the light source into color light (Pg. 16, lines 4 – 5; "passing white light from a source through appropriate color filters to form colored light.");

an image modulator for modulating the color light from the color wheel, and projecting the color light to form an image on a screen (60, Fig. 3B, Pg. 16, lines 11 –

14; "light illuminates spatial light modulator which determines the particular color for

being displayed.");

a scalar (72, 74, 76, Fig. 3B) connected to the image modulator for controlling the

image modulator for controlling the image modulator to create a gray-level image,

wherein the gray-level image includes gray levels (All gray-level images inherently

include gray levels.) for each of one or more predetermined colors (Pg. 18, lines 8 – 18;

"The brightness of that position is determined by the relevant data pixel in the image.

The values for the pixels of the image are optionally and preferably retrieved from an

image data file/a scalar for generating a grey-level image signal." The determination of

the brightness of each pixel/one or more predetermined color translates to a gray-scale

image.).

But does not describe a gray level image for facilitating adjustment of a color

wheel delay of the projector, wherein the adjustment includes minimizing one of yellow

and purple color in the projected gray-level image.

However, Marshall teaches a method of manually adjusting a color wheel delay

of a spatial light modulator display system by a user by pressing buttons on a remote

control (Marshall: Col. 3, lines 43 - 50; Note: The display system "automatically"

performs the process, but the user must "manually" activate to adjust the color wheel

delay through the user interface. A user who perceives a gray level image on a screen

will activate the color wheel delay using an interface such as a remote. Any gray-level

image on the screen can be used to facilitate a delay of the color wheel to shift or

change the color of the image to minimize the color tinting of the projected gray-level

image. A user must view a gray-level image in order to discern the change in the gray-level image after a delay has been caused by operating a remote by the user.). Also, the method can be performed manually by perceiving the color using the human eye, and making an electrical or mechanical adjustment (Marshall: Col. 5, lines 53 – 56). Further, when Marshall's system is automatically re-aligned by a user via a remote, the yellow or purple caused by incorrect color wheel speed would be automatically reduced or minimized. Marshall's Figure 1 shows a Color wheel which is in R, G and G sequence. If R is too fast, a purplish image will be projected and if R is too slow, a yellowish image will be projected (Refer to Response to Arguments.).

Therefore, taking the combined teachings of Ben-David and Marshall, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of manually adjusting the color wheel delay of a projector to minimize one of yellow and purple color in a gray-level image as taught by Marshall into the projector of Ben-David to obtain a projector comprising a color wheel wherein the color wheel delay of the projector is manually adjusted to minimize one of yellow and purple color in a projected gray-level image by using a user interface to allow quick and easy alignment without the need for special test equipment, such as oscilloscopes and photodiodes, and the associated tedious and labor intensive process of matching a modulation sequence (Marshall: Col. 6, lines 39 - 43).

The combined teachings of Ben-David and Marshall teach a projector comprising a color wheel wherein the color wheel delay of the projector is manually adjusted using a user interface.

But does not describe projecting an on screen display (OSD) on a screen, the OSD comprising the gray-level image created by the scalar.

However, Park teaches an on screen display (OSD) for adjusting the brightness levels and color levels of the monitor to create a monitor profile for storage wherein the OSD comprises a gray-level image comprises an image that created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels representing a different shade of the predetermined color (Park: See Figs. 8 - 11. The OSD's comprise a selection option to choose a particular color and a scale comprising a plurality of pixels representing different shade to indicate the change of the color after the adjustment.)

Therefore, taking the combined teachings of Ben-David, Marshall and Park, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of using an OSD to make adjustment of color of the monitor using a scale taught by Park into a projector comprising a color wheel wherein the color wheel delay of a projector is adjusted with a user's remote controller as taught by Ben-David and Marshall to obtain a projector wherein an OSD displays gray-scale images with a plurality of pixels representing different shade of color of color wheel delay for color adjustment to provide a user a scaled visual assistance for a real time accurate adjustment capability.

Re claim 2, Ben-David teaches the projector of claim 1 wherein the image

modulator is a digital micromirror device (DMD) (Pg. 17, lines 10 – 14; "modulation type

include DMD.").

Re claim 3, Ben-David teaches the projector of claim 1 wherein the gray-level

image has 32 gray-levels (Pg. 22, lines 2 – 3; "The various "gray levels" of the

illumination can be achieved in different ways depending on the type of spatially

modulated mask is used.").

Re claim 4, Ben-David teaches the projector of claim 1 wherein gray-level

images are generated for 3 colors (Pg. 18, line 1; "Filter wheel holds at least four color

filters.").

Re claim 5, Ben-David teaches the projector of claim 4 wherein the 3 colors

having gray-level images are red, green, and blue (Pg. 20, line 3 – 4; "obtain digital

RGB (three-color) image data 72." Note that image data 72 corresponds to the scalar

as discussed in claim 1, which is used to generate gray-level images.) .

Claim 6 recites limitations that have been covered in claim 1. Therefore, it has

been analyzed and rejected w/r to claim 1. With respect to said method for adjusting,

the applicant merely recites the elements and limitations as described in claim 1, and

does not disclose a specific method of adjusting a projector. Therefore, it has been
rejected w/r to claim 1.

The limitations of claim 8 are substantially similar to the limitations of claim 2.
Therefore, it has been analyzed and rejected substantially similar to claim 2.

The limitations of claim 9 are substantially similar to the limitations of claim 3.
Therefore, it has been analyzed and rejected substantially similar to claim 3.

The limitations of claim 10 are substantially similar to the limitations of claim 4.
Therefore, it has been analyzed and rejected substantially similar to claim 4.

The limitations of claim 11 are substantially similar to the limitations of claim 5.
Therefore, it has been analyzed and rejected substantially similar to claim 5.

Re claim 12, Ben-David teaches a projector (48, Fig. 3B) comprising: a housing
(Pg. 6, lines 20 – 21; "The present invention is suitable for various types of electronic
display devices, such as televisions and monitor devices." A conventional television
comprises a "housing."); a light source (50, Fig. 3B) installed in the housing;

a color wheel (54, Fig. 3B) for separating the light from the light source into color
light (Pg. 16, lines 4 – 5; "passing white light from a source through appropriate color
filters to form colored light.");

an image modulator for modulating the color light from the color wheel, and

projecting the color light to form an image on a screen (60, Fig. 3B, Pg. 16, lines 11 –

14; "light illuminates spatial light modulator which determines the particular color for

being displayed.");

a control circuit connected to the image modulator for controlling the image

modulator to operate synchronously with the color wheel (Pg. 18, lines 8 – 10; "the

loading of the data into spatially modulated mask is synchronized by a timing system,

according to the rotation of filter wheel");

a scalar (72, 74, 76, Fig. 3B) connected to the image modulator for generating a

gray-level image signal; wherein the color light is modulated to form a gray-level image,

wherein the gray-level image includes gray levels (All gray-level images inherently

include gray levels.) on the screen through a gray-level image signal outputted to the

image modulator (Pg. 18, lines 8 – 18; "The brightness of that position is determined by

the relevant data pixel in the image. The values for the pixels of the image are

optionally and preferably retrieved from an image data file/a scalar for generating a

grey-level image signal." The determination of the brightness of each pixel/one or more

predetermined color translates to a gray-scale image.),

But does not describe a gray level image for facilitating adjustment of a color

wheel delay of the projector, wherein the adjustment includes minimizing one of yellow

and purple color in the projected gray-level image.

However, Marshall teaches a method of manually adjusting a color wheel delay

of a spatial light modulator display system by a user by pressing buttons on a remote

control (Marshall: Col. 3, lines 43 - 50; Note: The display system "automatically"

performs the process, but the user must "manually" activate to adjust the color wheel

delay through the user interface. A user who perceives a gray level image on a screen

will activate the color wheel delay using an interface such as a remote. Any gray-level

image on the screen can be used to facilitate a delay of the color wheel to shift or

change the color of the image to minimize the color tinting of the projected gray-level

image. A user must view a gray-level image in order to discern the change in the gray-

level image after a delay has been caused by operating a remote by the user.). Also,

the method can be performed manually by perceiving the color using the human eye,

and making an electrical or mechanical adjustment (Marshall: Col. 5, lines 53 – 56).

Further, when Marshall's system is automatically re-aligned by a user via a remote, the

yellow or purple caused by incorrect color wheel speed would be automatically reduced

or minimized. Marshall's Figure 1 shows a Color wheel which is in R, G and G

sequence. If R is too fast, a purplish image will be projected and if R is too slow, a

yellowish image will be projected (Refer to Response to Arguments.).

Therefore, taking the combined teachings of Ben-David and Marshall, as a

whole, it would have been obvious to a person having ordinary skill in the art to

incorporate the idea of manually adjusting the color wheel delay of a projector to

minimize one of yellow and purple color in a gray-level image as taught by Marshall into

the projector of Ben-David to obtain a projector comprising a color wheel wherein the

color wheel delay of the projector is manually adjusted to minimize one of yellow and

purple color in a projected gray-level image is manually adjusted by using a user

interface to allow quick and easy alignment without the need for special test equipment,

such as oscilloscopes and photodiodes, and the associated tedious and labor intensive

process of matching a modulation sequence (Marshall: Col. 6, lines 39 - 43).

The combined teachings of Ben-David and Marshall teach a projector comprising

a color wheel wherein the color wheel delay of the projector is manually adjusted using

a user interface.

But does not describe the gray-level image created by the scalar and wherein the

gray-level image is created for a predetermined color and includes a plurality of pixels,

each of the plurality of pixels representing a different shade of the predetermined color.

However, Park teaches an on screen display (OSD) for adjusting the brightness

levels and color levels of the monitor to create a monitor profile for storage wherein the

OSD comprises a gray-level image comprises an image that created for a

predetermined color and includes a plurality of pixels, each of the plurality of pixels

representing a different shade of the predetermined color (Park: See Figs. 8 - 11. The

OSD's comprise an selection option to choose a particular color and a scale comprising

a plurality of pixels representing different shade to indicate the change of the color after

the adjustment.)

Therefore, taking the combined teachings of Ben-David, Marshall and Park, as a

whole, it would have been obvious to a person having ordinary skill in the art to

incorporate the idea of using an OSD to make adjustment of color of the monitor using a

scale taught by Park into a projector comprising a color wheel wherein the color wheel

delay of a projector is adjusted with a user's remote controller as taught by Ben-David

and Marshall to obtain a projector wherein an OSD displays gray-scale images with a

plurality of pixels representing different shade of color of color wheel delay for color

adjustment to provide a user a scaled visual assistance for a real time accurate

adjustment capability.

Re claim 14, Marshall teaches in which said user interface comprises control

keys accessible to said user which allow said user to increase or decrease the color

wheel delay values (Col. 3, lines 42 – 47; "the apparatus can be embodied into the

display system and performed by a consumer, such as using buttons on a remote

control/user interface").

Re claim 15, Takeuchi teaches in which said on screen display also display an

adjustment check that allows the user to see how much the color wheel delay value has

been adjusted (Takeuchi teaches a scalar displayed on an OSD wherein the bar of the

scalar on Fig. 4 moves left and right to allow the user to see the amount of the

adjustment value).

The limitations of claim 16 are substantially similar to the limitations of claim 1.

Therefore, it has been analyzed and rejected substantially similar to claim 1.

The limitations of claim 17 are substantially similar to the limitations of claim 6.

Therefore, it has been analyzed and rejected substantially similar to claim 6.

6.   **Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable Marshall in view of Park.**

Re claim 13, Marshall teaches a method for manually adjusting the color accuracy of a projector (10 "display system" Fig. 1), the projector comprising a color wheel (12 "color wheel" Fig. 1) for separating light into color light, an image modulator (26 "DMD" Fig. 1) for modulating the color light from the color wheel, a control circuit (30 "DMD controller" Fig. 1) for controlling the image modulator to operate synchronously with the color wheel, and a user interface for manually adjusting the color wheel delay value (Col. 3, lines 42 – 47), the method comprising:

and using the user interface for manually adjusting the color wheel delay value (Col. 3, lines 42 – 47; "the apparatus can be embodied into the display system and performed by a consumer, such as using buttons on a remote control/user interface") , wherein the adjustment minimizes one of yellow and purple color in the projected image (Col. 3, lines 30 – 35; "If the spoke position is such that equal amounts of red and blue are passed, the display looks like it is magenta. If on the other hand there is too much blue, the display will appear bluish purple, and if there is too much red the display will appear reddish purple." Marshall teaches "color adjustment" to reduce the phenomenon of the display appearing bluish purple or reddish purple which is caused by the delay of the color wheel delay to cause the colors to appear mixed. The display appearance due to the color wheel delay as described by Marshall is substantially

similar to the "color mixing/tinting" due to the color wheel delay of the current application as described above. Further, when Marshall's system is automatically re-aligned by a user via a remote, the yellow or purple caused by incorrect color wheel speed would be automatically reduced or minimized. Marshall's Figure 1 shows a Color wheel which is in R, G and G sequence. If R is too fast, a purplish image will be projected and if R is too slow, a yellowish image will be projected (Refer to Response to Arguments.).) and the control circuit to control the image modulator to operate according to rotation of the color wheel for accurately projecting an image on the screen (Col. 5, lines 28 – 40; "DMD controller timely writes/synchronize the various digital color data from memory banks to modulate the correspondingly color light and create a light image.").

But does not describe the gray-level image created by the scalar and wherein the gray-level image is created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels representing a different shade of the predetermined color.

However, Park teaches an on screen display (OSD) for adjusting the brightness levels and color levels of the monitor to create a monitor profile for storage wherein the OSD comprises a gray-level image comprises an image that created for a predetermined color and includes a plurality of pixels, each of the plurality of pixels representing a different shade of the predetermined color (Park: See Figs. 8 - 11. The OSD's comprise an selection option to choose a particular color and a scale comprising a plurality of pixels representing different shade to indicate the change of the color after the adjustment.)

Therefore, taking the combined teachings of Marshall and Park, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of using an OSD to make adjustment of color of the monitor using a scale taught by Park into a projector comprising a color wheel wherein the color wheel delay of a projector is adjusted with a user's remote controller as taught by Marshall to obtain a projector wherein an OSD displays gray-scale images with a plurality of pixels representing different shade of color of color wheel delay for color adjustment to provide a user a scaled visual assistance for a real time accurate adjustment capability.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YONG SIM whose telephone number is (571)270-1189. The examiner can normally be reached on Monday - Friday (Alternate Fridays off) 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YONG SIM/
Examiner, Art Unit 2629
4/25/2010